UCRL-MA-133867

ES&H manual

Environment, Safety, and Health

Volume II

Part 22: Emergencies/Earthquakes/Fire

22.1
Emergency Management

(Formerly H&SM Chapter 3)

Recommended for approval by the ES&H Working Group

Approved by: Robert W. Kuckuck
Deputy Director for Operations

New document or new requirements

Approval date: March 3, 2000
Editorial Update: April 1, 2001

This work performed under the auspices of the U.S. Department of Energy by University of California Lawrence Livermore National Laboratory under Contract W-7405-ENG-48.

22.1

Emergency Management*

Contents

* **Minor revision**

Terms and Definitions

Incident Command System	An organized system of roles, responsibilities, and standard operating procedures used to manage emergency operations at LLNL and throughout the State of California.
Operational emergencies	Significant accidents, incidents, events, or natural phenomena that could seriously impact the safety or security of LLNL's employees and facilities or the environment.
Self-help Plan	A plan detailing an organizational structure for employees to take action when LLNL's professional emergency responders are overwhelmed and cannot respond to all reported emergencies.

22.1

Emergency Management

1.0 Purpose and Scope

The scope and extent of emergency planning and preparedness at LLNL are based on, and commensurate with, the hazards and potential consequences associated with a facility and its operation. The Laboratory uses an emergency management system (known as the Incident Command System) that is capable of responding to and mitigating the consequences resulting from operational emergencies. This document describes that system and provides emergency planning procedures for operational emergencies that occur on LLNL property and those that take place offsite but have a potential impact on LLNL. The *LLNL Emergency Plan* (UCRL-MA-11331) provides additional information.

2.0 Planning for Emergencies

Formal planning for emergencies is based on a hazard assessment. This assessment provides the basis for developing emergency plans and includes hazards, event scenarios, indicators, consequences, and possible emergency and response actions. The hazards described in the hazard assessment are also described in detail in various documents such as Operational Safety Plans (OSPs), Preliminary Safety Analysis Reports (PSARs), Safety Analysis Reports (SARs), Safety Analysis Documents (SADs), and Facility Safety Plans (FSPs). These documents are modified as conditions change.

The Laboratory incorporates into its Emergency Plan a broad range of hazards, potential consequences, and lessons learned from simulated and actual emergencies that occurred at LLNL or other Department of Energy (DOE) facilities. The degree of emergency planning and preparedness for a particular facility directly corresponds to the type and scope of hazards and the potential for harm.

LLNL Emergency Plan. The Laboratory's Emergency Plan contains specific procedures for planning, responding to, mitigating, and recovering from emergencies that occur on LLNL property or those that take place offsite but have a potential impact on LLNL. Situations with a potential impact on the Laboratory include

- Civil disturbance
- Fire
- Explosion
- Incidents involving hazardous materials and waste

- Natural disaster (e.g., earthquake)
- Terrorism
- Bomb threats

The plan also contains LLNL's general emergency response policies, commitments, and institutional responsibilities for the management of and recovery from emergencies. Note that it is not possible to list in this plan all events that could occur during any given emergency situation. However, a combination of hazard assessments and an effective emergency plan can provide the framework for responses to credible emergency situations.

Self-help Program. The Laboratory's Self-help Program provides information on how to respond to significant emergency situations. These types of emergencies sometimes prevent emergency personnel from responding to other emergencies in a timely manner. The Self-help Program includes plans for

- Accounting for all personnel.
- Ensuring the safety and well being of personnel.
- Providing first-aid response. (First-aid supplies, tools, preparedness information, and other materials are stored at each assembly point in special equipment lockers for use during emergencies that require activation of the Self-help Program.)
- Locating and rescuing trapped or injured personnel.
- Locating and reporting damage to facilities.
- Assigning activities to self-help volunteers.

3.0 Operation during an Emergency

3.1 Incident Commander

The LLNL Fire Department responds to all nonsecurity emergencies until the incident is stabilized. The Safeguards and Security Department performs a similar function for security incidents. The Incident Commander for either the Fire Department or Safeguards and Security Department maintains on-scene command and control and keeps the on-duty Laboratory Emergency Duty Officer (LEDO) informed.

3.2 The Laboratory Emergency Duty Officer

The Laboratory Director has delegated full authority to the LEDO to take the actions necessary to protect the health and safety of employees, the public, and the environment, and to maintain the security of the facility. The LEDO serves as a consultant to the Incident Commander, the Director's Office, and cognizant senior management.

3.3 Emergency Management Team

The emergency management team (EMT) is activated by the LEDO when it is determined that significant resources will be required to respond to an operational emergency. EMT members are the department heads (or designees) from the Environmental Protection Department, the Hazards Control Department, Plant Engineering, Public Affairs, Safeguards and Security, and Site 300. The on-duty LEDO becomes the emergency manager, and the off-duty LEDO becomes the deputy emergency manager.

3.4 Satellite Operations Centers

The EMT is supported by Satellite Operations Centers (SOCs) whose functions correspond to the EMT membership. For example, the Environmental Protection Department's SOC provides support for emergencies with environmental implications. The SOCs dispatch field teams, collect data, make regulatory notifications, and provide information to the EMT.

3.5 Environment, Safety, and Health (ES&H) Team

The Incident Commander works closely with the area ES&H Team through the ES&H Team leader to develop an Incident Action Plan for controlling emergencies. This plan identifies health and safety requirements; strategic goals; and tactical objectives to protect life, the environment, and property. Under the direction of the Incident Commander, a liaison (ES&H Team leader, deputy, or lead technician) for the cognizant ES&H Team will coordinate all activities at the emergency scene.

During normal working hours, ES&H Team personnel respond to the emergency scene and report to the Incident Commander. After normal working hours, the off-shift health and safety technician responds to onsite emergencies and assumes the position of the ES&H Team liaison.

3.6 Self-help Organizations

Under certain emergency conditions, it will be necessary for departments, divisions, and facilities to react locally to emergencies using their own self-help programs. Each Directorate has a self-help organization and self-help plan.

The Laboratory has several self-help zones, each consisting of a control point, a zone supervisor, and numerous assembly points. Assembly point leaders direct local emergency activities from the assembly points. The EMT provides overall coordination and direction to self-help organizations.

4.0 Evacuation Drills and Exercises

Drills and exercises, including evacuation drills, are conducted to test the response capability of the Laboratory's emergency management organizations and ensure that all Laboratory personnel are properly trained to respond to an actual emergency. The scenarios for these drills and exercises range from specific building evacuations to a simulated earthquake and involve actions from all onsite personnel.

Drills are held throughout the year to train EMT members and SOC personnel in various aspects of emergency preparedness. LLNL conducts an annual exercise to test an integrated response by EMT personnel, SOCs, and field elements of emergency responders.

Employees are informed of evacuation drills and exercises through various means such as *Newsline*, handouts distributed at the gate, and the LLNL radio station KKG291 (1610 AM).

5.0 Emergency Evacuation and Shelter

Depending on the type of emergency, the Incident Commander may ask employees to evacuate or take shelter within the building. Employees may also receive instructions from one or more of the sources listed below.

- LEDO
- LLNL Emergency Voice Alarm System
- Self-help Program emergency communications structure
- LLNL radio station KKG291 (1610 AM)
- Uniformed Protective Force Officer

If employees are to evacuate a building, they should proceed to the nearest assembly point and only leave the area when instructed to do so by the assembly point leader. Employees who are instructed to take shelter within the building should immediately move indoors, close all windows and doors, and stay inside until provided further instructions.

6.0 Use of Vehicles during Emergencies

It is essential to have the necessary personnel and equipment at the scene of an emergency promptly. Thus, Laboratory vehicles shall be relinquished for this service when needed. Requests by emergency response personnel for taxi service to an emergency scene shall be given immediate priority. The Incident Commander may request taxi service for other situations related to the emergency. During an off-shift emergency, all taxis are available for use by emergency response personnel. Taxi drivers and emergency personnel using taxis must obey all traffic regulations.

7.0 Post-Emergency Controls

The Incident Commander will formally transfer control of the incident scene to the ES&H Team liaison upon stabilization of the scene or termination of activities. Depending on the size and extent of the emergency, control of the scene may be transferred to an environmental analyst, if environmental cleanup is required, or returned to the program if the ES&H Team considers the area safe.

Release of the incident scene will occur only after the ES&H Team has completed a preliminary investigation to determine the cause of the incident and the LLNL management responsible for the activity, facility, or program has reached a decision on the need for a more formal investigation (e.g., incident analyses). Document 4.5, "Incidents—Notification, Analysis, and Reporting," in the *Environment, Safety, and Health (ES&H) Manual* describes LLNL's incident analysis procedures.

Parts of a facility or area may either be deemed unsafe for use or be turned over to an incident analysis committee while the rest of the facility can resume normal operations. In such cases, the ES&H Team leader and the facility manager should establish a limited-access area and ensure the authorizing manager is notified.

8.0 Responsibilities

All workers and organizations responsible for emergency management shall refer to Document 2.1, "Laboratory and ES&H Policies, General Worker Responsibilities, and

Integrated Safety Management," in the *ES&H Manual* for a list of general responsibilities. Specific responsibilities are listed below each title.

8.1 Associate Directors

- Ensure that each department, division, or major facility at LLNL maintains a self-help plan that addresses potential emergency situations.
- Ensure employees are designated for zone control and assembly point assignments.

8.2 Incident Commander

- Direct emergency responders at all emergencies.
- Keep the LEDO informed regarding the status of the situation.
- Declare an event an operational emergency, when necessary, and categorize the incident.
- Notify appropriate DOE elements and offsite community partners of the emergency.
- Identify and request the necessary response resources.

8.3 Laboratory Emergency Duty Officer

- Monitor events and conditions that could be indicative of an operational emergency. Ensure that appropriate indicators are applied to estimate the severity of the events in a timely manner.
- Activate the EMT and the Emergency Management Center (EMC) based on information obtained from the Incident Commander, the *Emergency Response Guidebook*, or other sources. (The LEDO is the LLNL emergency manager in charge of the EMT).
- Upgrade or downgrade the operational emergency and provide ongoing guidance to ensure worker protection.
- Provide strategic direction and response for mitigation, termination, or recovery from operational emergencies.
- Make recommendations to state and local emergency service organizations for offsite protective actions.
- Ensure that necessary staffing and other critical resources are obtained.

- Approve press releases.
- Coordinate recovery activities.
- Ensure that the notification processes described in Document 4.5 have been initiated.

8.4 ES&H Team

- Support the Incident Commander by providing expert advice on hazards, hazard mitigation strategies, and mitigation actions.
- Assist in developing the Incident Action Plan.
- Assist the Incident Commander with evaluating hazards.
- Assist in notifying directorate personnel of events, if necessary.

8.5 Laboratory Self-help Program Manager

- Provide direction to and oversight of the Laboratory's Self-help Program.
- Coordinate information between the EMT and the zone control points during emergencies.
- Provide guidance and assistance to directorate self-help programs with developing plans, organizing and training personnel, and coordinating Laboratory resources.
- Review directorate self-help plans annually to ensure proper documentation.

8.6 Self-help Zone Supervisors

- Coordinate self-help emergency activities within the zone and establish a communication link with the EMC during an emergency.
- Obtain from assembly point leaders a count of all personnel, as well as injuries and property damage, and transmit this information to the Emergency Management Center.
- Provide advice and recommendations to assembly point leaders and keep them apprised of conditions at the Laboratory and within the zones.
- Direct the activities of the zone control point staff.

8.7 Assembly Point Leaders

- Account for all personnel who should be in the assigned area.
- Provide care and protection to personnel, including first aid.
- Coordinate the transport of injured personnel.
- Assess and report emergency situations.
- Oversee the search and rescue operations of re-entry teams.

8.8 Emergency Management Team

The EMT provides overall coordination and direction to organizations during operational emergencies.

8.9 Environmental Duty Officer

- Assist the Incident Commander in making decisions regarding environmental issues.
- Ensure the appropriate outside regulatory agencies are notified following environmental incident notification and reporting procedure.
- Identify the character, source, amount, and extent of released material.
- Assess possible hazards to the environment.
- Ensure waste that is incompatible with released waste is not handled in the area of the release until cleanup is complete.

8.10 Workers

- Know the Laboratory's emergency numbers (911, onsite, 925-447-6880, offsite or from a cellular phone). Note that the LLNL Safeguards and Security Protective Force Division may be reached directly by dialing ext. 2-7222.
- Know the assembly point for your work area and the best route to get there (or an alternate route in the event the best route is blocked). Remember that lights may go out and CAIN booths may not be working.
- Know the assembly areas in other parts of the Laboratory that you frequently visit. Maps are posted near the exits of all buildings.
- Check your work area periodically for situations that could present a hazard during a disaster.

- Use only properly secured bookcases, shelves, and cabinets for storage. Loose items (e.g., chemicals and glassware) may need shelf restraints. Details on seismic safety can be found in Document 22.4, "Earthquakes," in the *ES&H Manual*.
- Keep aisles clear to allow for quick exit from buildings.
- Be familiar with any equipment you work on and how to turn it off safely.
- Consider signing up as a first-aid team member. This involves biennial training in first aid and cardiopulmonary resuscitation and being available during a disaster to assist the injured. Local first-aid teams are a vital part of the Laboratory's Self-help Program.

Workers are to take the following actions during an emergency:

- Call 911 from a Laboratory phone to report any incident or 925-447-6880 from a cellular phone or if calling from offsite. Describe the incident to the emergency dispatcher, give the specific location of the incident, and indicate whether anyone was injured. Always give your name, the telephone number you are calling from, and remain on the line until the emergency dispatch releases you. Note that it is better to call for help even though it may not be needed than to call for help after an incident has escalated beyond local control.
- Direct responding fire fighters or security personnel to the emergency. In addition, inform the fire fighters of any hazards associated with the area, including any other information that will help them avoid injury. Follow the senior fire officer's instructions.
- Administer first aid or attempt to control the situation only if you know the correct emergency procedures and will not endanger the responder or victim.
- Remove all injured persons and leave the immediate vicinity if there is a threat of further injury or over-exposure to hazardous material. If there is no danger, do not move the seriously injured.
- Protect yourself as well as others in the area. During an earthquake, take cover under a desk or table until ground motion stops. In the event of a fire or chemical spill, move away from the hazard and, if possible, close but do not lock doors to put a barrier between you and the hazard.
- Upon hearing an emergency message directing you to evacuate the building, do so immediately or as soon as feasible. If time permits, secure classified information before you leave. Take your personal possessions with you because you may not be able to re-enter the building. If you have visitors, take them along with you to the assembly point. Be alert for broken glass, exposed electrical wires, and spills as you leave. If you are a vehicle

custodian, remember to take your vehicle keys before leaving the building. These vehicles may be needed to transport the injured.

- Proceed to the nearest assembly point and wait for instructions after evacuating a building. If you are visiting another area at the Laboratory, go to the assembly point for that building.
- Provide the assembly point leader the following:
  - — Any information about the injured or people trapped within the building.
  - — Any hazards that may exist (e.g., fires, spills, exposed electrical systems, or hazardous equipment that may be in operation).
  - — Any unsecured classified information.
- Be prepared to assist the assembly point leader in "sweeping" the building for injured personnel and hazards. This may involve administering first aid to injured people, shutting down equipment, and transporting the injured.

IMPORTANT

Employees must not re-enter their workplaces or leave the assembly point until the assembly point leader authorizes them to do so.

9.0 Work Standards

DOE O 151.1, Chg. 2 "Comprehensive Emergency Management System" (see Sections 3 and Attachment 1).

29 CFR 1910.120, Subpart H, "Hazardous Waste Operations and Emergency Response."

10.0 Resources for More Information

10.1 LLNL Contacts

For additional information about this document, contact the Emergency Management Division of the Hazards Control Department.

10.2 Applicable Lessons Learned

The articles below are examples of lessons learned about emergency management.

- "Requesting Emergency Assistance with Cellular Phones" (April 25, 1996)

- "Requesting Assistance in an Emergency" (March 16, 1995)
- "Smoke and other Indicators of Possible Fire Should be reported Immediately" (August 9, 1994)

These articles can be found at the following Internet address:

10.3 Other sources

Firescope California, *Fire Service Field Operations Guide*, ICS 420-1, Incident Command System Publication, November 1996.

LLNL Emergency Plan, Lawrence Livermore National Laboratory, Livermore, CA (UCRL-MA-113311).

Emergency Response Guidebook, NAERG96 (or latest version) prepared by the staff of Transport Canada, the U.S. Department of Transportation, and the Secretariat of Communications and Transportation of New Mexico, and others.